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Surgical management and reconstruction training (SMART) course for orthopaedic surgeons: a 1-year prospective analysis

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Abstract

Background The burden of complex orthopaedic trauma in low-income and middle-income countries (LMICs) is exacerbated by soft tissue injuries, which can often lead to amputation. The purpose of this study was to create and evaluate the Surgical Management and Reconstruction Training (SMART) course to help orthopaedic surgeons from LMICs manage soft tissue defects and reduce the rate of amputation.

Methods In this prospective observational study, orthopaedic surgeons from LMICs were recruited to attend a 2-day SMART course in San Francisco, CA, USA. We administered a survey to participants before the course to assess the burden of soft tissue injury and rates of amputation at their respective sites of practice. We repeated this survey immediately and 1 year post-course to evaluate the quality of instructional materials and the effect of the course in reducing the burden of amputation, respectively. A Likert scale from 1 (poor) to 5 (excellent) was used to assess 14 instructional criteria.

Findings 51 practising orthopaedic surgeons from 25 LMICs attended the SMART course. Before the course, participants cumulatively reported 970 amputations per year as a result of soft tissue defects. Mean Likert scores from the survey of participants' rating of the quality and effectiveness of training materials was at least 4·4 for all instructional criteria. Of the 34 (66·7%) orthopaedic surgeons who completed the survey at 1 year follow up, all reported that they had performed flaps, learned at the course, to treat soft tissue defects. Of the 594 flaps performed by participants 1 year after the course, 554 (93·3%) were reported to have been successful and respondents estimated that flap procedures prevented 116 amputations. At 1 year follow up, almost all (33 [97%]) respondents reported that they had taught flap reconstruction technique to either colleagues or residents, and they estimated that 28 other surgeons undertook flap reconstruction as a result of information dissemination.

Interpretation The SMART course can give orthopaedic surgeons practising in LMICs the skills and knowledge to successfully perform flaps and reduce amputation. While this course offers a collaborative, sustainable approach to reduce global surgery disparities in amputation, future investigation into the other modalities to establish soft tissue management capacity in LMICs is warranted.

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Declaration of interests
We declare no competing interests.

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